



Why is tungsten carbide considered a health hazard?

Tungsten carbide is the most commonly used “hard metal.” Hard metals are metal alloys used because of their hardness and resistance to wear and high temperatures.

Exposures to tungsten carbide hard metal can cause asthma and “hard metal lung disease.” The cobalt in tungsten carbide is the element of most concern. Tungsten carbide often contains nickel and chromium, which can also cause asthma. These lung conditions can develop quickly or over a long period of time. Even low exposure levels can cause health problems. Your skin can also become sensitized to tungsten carbide hard metal, causing skin rash.

Tips

How do you know if a tungsten carbide hazard exists in your workplace?

- ✓ Identify any tasks where tools with hard metal tips and parts (containing tungsten carbide) are used.
- ✓ Read the MSDS (Material Safety Data Sheet) for the products in your workplace.



Tasks

- ✓ Manufacturing
- ✓ Machining
- ✓ Finishing
- ✓ Grinding
- ✓ Polishing
- ✓ Sharpening
- ✓ Brazing
- ✓ Welding
- ✓ Spraying
- ✓ Abrasive blasting

Occupations

- ✓ Powder metallurgists
- ✓ Machinists
- ✓ Grinders
- ✓ Tool makers
- ✓ Saw sharpeners
- ✓ Diamond polishers
- ✓ Brazers
- ✓ Welders



How are workers exposed to tungsten carbide?

Most exposures occur during job tasks that create dust, mist, or fume. Workers can become exposed by:

- breathing in dust, mist, or fume containing tungsten carbide
- skin contact with dust or solutions containing tungsten carbide
- eating, drinking, or smoking in tungsten carbide work areas

The shaping and sharpening of tungsten carbide tools by grinding can be a major source of exposure. Tungsten carbide can also be applied to surfaces by spraying melted metal. This process creates tungsten carbide dust and fume.



How do you prevent exposure to tungsten carbide?

Employers are required by federal law to provide a safe and healthy workplace. Here are some ways to prevent exposure to tungsten carbide:

Ventilation – Ensure that workers are using ventilation control measures and dust collectors correctly.

Respirators – Respirators are necessary when ventilation systems are not in place or not working properly. Use the type that is approved for protection against dust and mist.

Skin protection – Protective gloves and/or barrier creams are recommended when contact with dust or mist is likely. Wash skin thoroughly prior to applying barrier creams or using protective gloves.

Eye protection – Safety glasses with side shields, or goggles are recommended.

Other equipment – Full-body protective clothing is necessary if it is suspected that a worker will come in contact with tungsten carbide dust, mist, or fume. Work clothes should be changed daily if they are contaminated with tungsten carbide.

Housekeeping – Use wet methods or a vacuum with high-efficiency particulate air (HEPA) filters to prevent dust build-up and particles in the air.

Medical exams – It is recommended that workers get regular medical exams if they are routinely exposed to tungsten carbide dust, mist, or fume. These exams should include lung function tests.

Tips

Prevent exposure to tungsten carbide

- ☑ Avoid breathing dust, mist, and fume
- ☑ Avoid skin contact with dust and mist
- ☑ Use local exhaust ventilation control measures correctly
- ☑ Wash hands and exposed skin thoroughly before eating or smoking, and at the end of your work shift
- ☑ Do not eat, drink, or smoke in work areas where tungsten carbide dust is generated
- ☑ If you use a respirator, make sure that:
 - ▶ you have been trained on how to use it
 - ▶ it fits properly
 - ▶ it is clean
 - ▶ the filter is changed regularly
 - ▶ you stored it properly
 - ▶ you received medical clearance



How to get more information?

- **Read the MSDS** – it contains health hazard information, handling information, recommended precautions, and spill procedures.
- **Read the NIOSH/OSHA Guideline** – for cobalt metal, dust, and fume at www.osha.gov/SLTC/healthguidelines/cobaltmetaldustandfume/index.html
- **Contact us** – if you have any questions about the information in this brochure:

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Working with Tungsten Carbide

WHAT YOU NEED TO KNOW



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